PARENTAL SMOKING AND OTITIS MEDIA IN CHILDREN

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PARENTAL SMOKING AND OTITIS MEDIA

There are studies which claim to have found an association between exposure to ETS and the occurrence of a relatively common childhood ear condition called otitis media with effusion (OME). However, the reported data are inconsistent, and even contradictory, in nature. For example, while eight studies have reported a statistically significant association between parental smoking and middle ear problems in children,[1-8] ten studies have reported no statistically significant association.[9-17]

In regard to OME, an inflammation of the eustachian tube that can lead to the accumulation of fluid in the inner ear, a group of Dutch researchers has asserted that "there is little evidence that parental smoking has an effect on the risk for OME," although they noted that "the literature is not consistent."[11] Their own study indicated that while the occurrence of OME was not related to exposure to ETS in the home, variables relating to age, season, family size, sibling's history of OME, frequent swimming, and public day care attendance had a "significant effect." A Scottish study which did report an association between parental smoking and OME noted that the prevalence of parental smoking was higher in rented or crowded homes, and in homes affected by dampness or mould growth.[13] A 1993 study by Rasmussen, et al., while reporting that there was an association between day care attendance and otitis media, suggested that "no association was found between parents' smoking habits and the incidence of protracted SOM

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[secretory otitis media]."[17] Clearly, these reports suggest there is a need to evaluate additional factors in any study of the potential relationship between OME and parental smoking.

While a couple of studies in 1992 reported an association between parental smoking and otitis media[7-8], a 1991 study by Daigler et al. reported that they were "unable to confirm the association between [parental] smoking and otitis" that had been "reported by others."[14] Another group of authors reported that cigarette smoking is more common in households of lower socioeconomic status but that "it is unlikely to be a risk factor for otitis media with effusion, although it may have an association."[15] Similarly, a 1992 study by Rowe-Jones et al. failed to report a statistical association between parental smoking and otitis media with effusion requiring grommet insertion.[16]

Other researchers recently acknowledged that questionnaire reports of acute OME may be an inadequate method of determining the incidence of the condition in epidemiological studies.[18] Therefore, until a more accurate method of determining the incidence of OME is found, isolating parental smoking as a cause is seemingly unjustified.

Reports that parental smoking causes otitis media in children are contradicted by studies reporting no association between parental smoking and OME. The methods used in these studies

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to estimate exposure to ETS and the incidence of OME are seemingly inaccurate. Thus, the role, if any, of parental smoking has yet to be determined.

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OTITIS MEDIA "GLUE EAR"

TWO PROPOSED MECHANISMS (HAVE NOT BEEN PROVEN)

1. ETS LEADS TO AN UPPER RESPIRATORY INFECTION WHICH SPREADS TO THE INNER EAR

2. TOBACCO SMOKE IRRITATES THE EUSTACHIAN TUBE OF THE INNER EAR, LEADING TO THE INFLAMMATION/INFECTION

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PARENTAL SMOKING AND MIDDLE EAR DISEASE IN CHILDREN

STUDY	SIGNIFICANCE	SYMPTOMS OR ILLNESS (AGE IN YEARS/NUMBER OF SUBJECTS)
KRAEMER ET AL.	+	MIDDLE EAR EFFUSION (AGES NOT GIVEN/152)
MARCHISIO ET AL.	-	MIDDLE EAR EFFUSION (5 MONTHS-12 YEAR/172)
PUKANDER AND KARMA	-	MIDDLE EAR EFFUSION (7-29 MONTHS/753)
ROCKLEY	-	CHRONIC SEROUS OTITIS MEDIA (4-14/78)
VAN CAUWENBERGE AND KLUYSKENS	-	MIDDLE EAR EFFUSION (2.5-6/2,069)
BLACK	+	SEROUS OTITIS MEDIA (4-9/442)
IVERSEN ET AL.	+	MIDDLE EAR EFFUSION (<7/337)
PUKANDER ET AL.	+	ACUTE OTITIS MEDIA (2-3/471)
FLEMING ET AL.	-	OTITIS MEDIA (<5/575)
KALLAIL ET AL.	-	MIDDLE EAR 'PROBLEMS' (6-10 OR 11/238)
REED AND LUTZ	+	MIDDLE EAR EFFUSION (AGES NOT GIVEN/45)
ZIELHUIS ET AL.	-	MIDDLE EAR EFFUSION (3/<1,439)
HINTON	-	SURGERY FOR OTITIS MEDIA WITH EFFUSION (1-12/151)
STRACHAN ET AL.	+	MIDDLE EAR EFFUSION (6.5-7.5/736)
ROSS ET AL.	-	ACUTE OTITIS MEDIA (3-5/297)
STRACHAN	-	TYPE B TYMPANOGRAM (MIDDLE EAR EFFUSION); TYPE C TYMPANOGRAM (UNDER PRESSURE) (6.5-7.5/872)
STRACHAN ET AL.	-	'EAR TROUBLE' (6.5-7.5/770)
DAIGLER ET AL.	-	ACUTE OTITIS MEDIA (2-6/371)
BARR ET AL.	-	MIDDLE EAR EFFUSION AND OTITIS MEDIA (17 MONTHS-11 YRS/115)

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ROWE-JONES ET AL.	-	OTITIS MEDIA WITH EFFUSION (2-12 YRS/163)
ETZEL ET AL.	+	MIDDLE EAR EFFUSION (0-3 YRS/132)
MAW ET AL.	+	OUTCOME AFTER TREATMENT FOR OTITIS MEDIA (2-9 YRS/201)
RASMUSSEN	-	PROTRACTED SECRETORY OTITIS MEDIA (0-7 YRS/1306)

SUMMARY 8:15

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OTITIS MEDIA: COTININE STUDIES

STRACHAN ET AL. 1989 RR = 1.14 (95% CI: 1.03-1.27)*

*THE ODDS RATIO IS FOR A DOUBLING OF THE COTININE CONCENTRATION FOUND IN THE SALIVA OF THE CHILD.

NOTE: THE AUTHORS OF THIS STUDY CONCLUDED THAT "ABOUT ONE THIRD OF THE CASES OF MIDDLE EAR EFFUSION IN THIS STUDY WERE STATISTICALLY ATTRIBUTABLE TO EXPOSURE TO TOBACCO SMOKE."

ETZEL ET AL. 1992 RR = 1.38 (95% CI: 1.21-1.56)*

*THE ODDS RATIO IS FOR CHILDREN WITH SERUM COTININE CONCENTRATIONS OF 2.5 NG/ML.

NOTE: THE AUTHORS OF THIS STUDY CONCLUDED THAT "8% OF THE CASES OF OTITIS MEDIA WITH EFFUSION IN THIS POPULATION AND 17.6% OF THE DAYS WITH OTITIS MEDIA WITH EFFUSION MAY BE ATTRIBUTABLE TO EXPOSURE TO TOBACCO SMOKE."

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